QUARTERLY REPORT

To the Honorable Board of Commissioners of the Second Geological Survey of Pennsylvania,

AUGUST 2, 1877.

(Printed for private distribution to the Commissioners in advance of the meeting).

Since my last quarterly report no material change in the work of the Corps is to be reported.

Prof. Prime requested leave of absence, without pay, to make a voyage to Europe by the advice of his physician, which I granted, authority being given in a resolution covering such cases. His party has continued at work, and Mr. Berlin reported to me in person, Saturday, July 28th, that he expected to finish the field work inside of a triangle included by the three base lines uniting Albertis, Leesport and Reading, by about the 10th of September next, the proposed date of Prof. Prime's return.

Mr. Carll holds to his resolution to resign his commission as Assistant in charge of the Survey of the Oil Region, so soon as he hands in his Second Report. This he expected to do about the 1st of August; but delays have occurred, owing to the necessity for additional work to settle doubtful identifications of rock outcrops; and also owing to the necessity for personal consultations with Prof. James Hall at Albany and Prof. Winchell at Syracuse, which took place in their respective museums of Chemung and Waverly fossils late in July. The publication of Mr. Carll's large volume of Oil Well Records, just about issuing from the press, was an additional hindrance to the completion of his Second Report, which must be in a good degree based upon the data given to the public in that volume.

Prof. Frazer continues his personal survey of Lancaster County. Mr. Lehman continues his field work for the map of the South Mountains north of the Maryland line.

Prof. Stevenson continues his survey of Ligonier Valley; Mr. W. G. Platt, of Indiana County; Prof. White, of Lawrence County; Mr. Ashburner, of McKean and Elk Counties; Mr. Sherwood, of Lycoming County. Mr. Billin has a small camp in the Seven Mountains, and will probably report a complete mountain map of western Union, southern Lycoming, eastern Centre, and Huntingdon, and northern Mifflin. Mr. Chance is providing Mr. Carll with instrumental sections along the Alleghany River Valley between Warren and the New York State line; and Mr. Dewees, of whose work alone I have little or no knowledge since the termination of his long illness, is understood to be following the outcrops of Fossil Ore south of the Juniata and north of the North Mountain.

With the exception of Mr. Dewees, I have been in close and constant correspondence by letter and by personal interviews with all the members of the corps.

Prof. White has informed me that he has been appointed to a Chair in the West Virginia University, at Morgantown, on the Monongahela near the State line, and that his application for permission to complete the season's field-work has been refused; he must therefore assume the care of his classes in the middle of September, and will then begin the preparation of his report of Lawrence County for publication; and this can be printed separately or conjointly with his report of Beaver and northern Alleghany Counties now in my hands. He expects to make a careful reconnizance in Ohio before he leaves the field, so as to leave no part of the connection of our geology with that of Ohio open to further discussion. I am disappointed not to have a report on Mercer County from him; but this his new duties render impossible, as he would have to prolong his field-work for that purpose far into December.*

Mr. Franklin Platt has prepared a very full report on Blair County, and has used Mr. Sanders for that purpose until a week ago. I then directed Mr. Sanders to make a careful survey of the west shore of the Susquehanna opposite Harrisburg, in connection with Mr. Hartshorne's analyses of the several limestone beds. I shall transfer Mr. Sanders to the Bedford and McConnelsburg pike, for a close instrumental section of the Devonian rocks, and a topographical map of the McConnelsburg Cove.

Mr. David McCreath has left the laboratory at Harrisburg to accept a post at Glasgow. Mr. A. S. McCreath is therefore at present unable to turn out more than half the usual number of analyses of specimens of ore, coal, &c., sent in to him by the assistants in the field.

Dr. Genth continues his analyses of traps and azoic rocks in his laboratory at Philadelphia; and Dr. Sadtler will collect this month the oils and gases necessary for the investigation ordered at the last meeting of the Board.

Mr. Lesquereux is visiting at present the localities of fossil plants in western and eastern Pennsylvania. He has brought to Philadelphia for inspection seventy (70) plates ready to put into Sinclair's hands to be drawn, which will require—say

* Mr. White expresses an earnest desire to retain his connection with the Survey, and to be permitted to use his summer vacations in field work in Mercer and Crawford.

six months; at the end of which time plates and text of the Fossil Flora can be ready to issue from the press. I trust the Board will give the needful order to proceed to publish.

Mr. Hall, having got the present collections of the survey into excellent order, is most usefully employing his time and eminent abilities as a field geologist, in a preliminary study of the Philadelphia rocks, beginning at Trenton, and has already superintended Mr. Fellows in making fine collections from all the outcrops, along cross sections north of the railroad and extending to the border of the red shale of Bucks County. Important light has already been thrown upon the structure of this obscure belt. Mr. Hall is at present at Albany with Mr. Fellows, comparing specimens with those of the New York Museum and labelling them for the State Museum at Philadelphia. As soon as this is done Mr. Fellows will resume his work of collecting between the Neshamony and the Schuylkill rivers.

Mr. E. B. Harden, assisted by his brother, Mr. Oliver Harden, has been indefatigably busy with the illustrations of the reports going through the press and has been of the greatest assistance to me in the executive work of the survey, accounts, correspondence, proof-reading, index-making, and the furnishing of supplies to the parties in the field.

I am happy to think that the new arrangements as to State printing, in respect of illustrations, will relieve the survey of much of the delay and expense which has embarrassed its operations hitherto. The "preparation" of maps by Mr. Bien in New York will cause a large saving of time spent in table work, and will result in the production of our maps in the best style.

I have had several satisfactory interviews with the Superintendent of Public Printing, with the State Printer, and with Mr. Bien, and found them in agreement upon the best mode of publication. I have placed in Mr. Bien's hands the two fine maps of Lehigh and Northampton (limestone belt) which are under way. Also materials for preparing colored maps of Fayette, Westmoreland, and Alleghany, for Mr. Stevenson's Report now going through the press. Another edition of these maps will be required for his report on the Ligonier Valley when it appears next spring. The colored maps of Potter, Tioga and Bradford will also be prepared.

Mr. Bien will also duplicate one of these county maps in octavo size, as a specimen of what the colored Geological Hand Atlas of the State will be.

The list of Books published is as follows:

A. Sketch of the History of the First Survey.
B. Mineralogy of Pennsylvania.
BB. Small continuation of the same.
C. York and Adams.
CC. York and Adams.
D. Lehigh.
H. Clearfield and Jefferson.
HH. Cambria.
I. Venango.
J. Special Oil Report.
K. Greene and Washington.
L. Coke Report.
M. McCreath's Analyses.

The following are in press by Mr. Myers:

E. Dr. Hunt's Report, about two-thirds printed.
HHH. Somerset; all printed, except index and preface.
H. Oil Well Records; all printed except preface.

The following is in press by Mr. Hart:

KK. Fayette and Westmoreland; about half set up. Will be finished this week.

The following are in MSS. ready for press:

F. Fossil Ore Report; MSS. entirely re-written.
GG. Potter County.
MM. McCreath's Analyses, continued.
Q. Beaver County and vicinity;—Chance's Survey of the Beaver River waters.

Other MSS. also I have which require further consideration.

In addition then to the 13 volumes already published, three more will appear in the course of this month, and Dr. Hunt's probably in September, making 17 volumes in all.

The State Printer is prepared to print as fast as I can read proof for him, and can easily publish the 18th and 19th volumes of the set in September, if my strength holds out through the hot season.

This will leave only the 20th and 21st for publishing between the beginning of October and the beginning of January, by which time I will have Mr. White's book on Lawrence County (22d vol.) and, no doubt much earlier than that, Mr. Carll's Second Report on the Oil Region, making the 23d volume in all.

I will not absolutely promise to issue these volumes as rapidly as I have stated, because the labor of doing so, and the care required with illustrations, is excessive, and I may not be able to keep up this incessant activity; but if all goes well, it is quite possible, with our present new State Printing House, to work off through the press before next Winter most of the past fruits of the Survey.

I stated in my last quarterly report that by the enlargement of the Survey the appropriation would probably be made insufficient in spite of every economy which the work would permit to be applied; and that the present year would be the critical year of the Survey. Matters do not look quite so threatening now as they did a month ago, but it is nevertheless certain that there will be no funds for field expenses in November and December, and probably none for office expenses.

The drafts drawn this year amount to the following sums:—

	For Salaries.	*For Expenses.*	*Total.*
In January	$2500	$2608 00	$4108 00
February	2500	1289 50	3789 50
March	2965	1331 92	4296 92
April	2520	2020 00	4540 00
May	2530	2260 00	4790 00
June	2895	2278 00	5173 00
	$15,910	$10,787 42	$26,697 42

Leaving in the treasury unexpended	$23,302 52
From which deducting six months salaries	15,910 00
There will remain for expenses	$7,392 52

Equal to $1,848 per month for four months ending October 31, 1877.

The efficient prosecution of the Survey for the next four months (or, rather for the four months following the 30th of June, the end of the fiscal quarter) demands, not $1,848, but about $2,200 per month. It is evident, then, that the $7,392 ought to be exhausted in 3½ months from June 31st, that is, in the second week of October. Unless the *monthly expenses* can be lessened about $400 a month, there will not be sufficient money in the treasury to meet the *expense drafts of date October* 31, that is, if enough be reserved to pay salary drafts November 30 and December 31.

Earnest efforts will be made to keep the running expenses down; but in the last event the Corps of the Survey must expect to receive no salary drafts for December, unless the Board sees some other issue out of the difficulty.

This difficulty originated in putting the Northern District into commission, by which an annual drain of about $2,300 on the treasury was established. In view of our reports and maps of the Northern Counties this is hardly to be regretted.

Or the difficulty may have another cause assigned to it, viz.: the fact that field work was carried on in the depth of last Winter in Beaver County, and in the Oil Regions.

The total outlay for the Winter quarter (January, February, March) in 1877 amounted to	$12,194 42
While in 1876 it was only	10,139 83
Excess of Winter expenses in 1877 over 1876	$2,054 59

It was impossible to avoid this Winter work, because it was preliminary to the field work of the Oil Surveys in the Spring and Summer; and in the case of Beaver County, was needed to complete a report.

The passing of the salary payments in December, if ordered, would be a virtual reduction of wages 18⅔%; and the compensation received is already exceedingly small.

I am obliged to report the situation to the Board thus long in advance because the next quarterly meeting of the Board should take place November 1, by which time the order to cease work should have already taken effect.

1. It might be *Resolved: that a special meeting of the Board be held on Thursday, the 11th of October, at Philadelphia.* This would be three weeks in advance of the November 1 quarterly meeting; and by the 11th I could have the accounts of the summer quarter—July, August and September—ready for audit.

I estimate the expenses of

July, just passed, at about	$4,350
August, current, at about	4,300
September, at about	4,900
Total	$13,550

2. A requisition on the State treasury for $15,000 for the ensuing three months—July, August and September—will leave a working balance in the hands of the Treasurer of the Board.

I recommend the following additional resolutions to be passed:

3. *Resolved*, That the State Geologist be instructed to stop all field work on or before the 31st of October next; and to inform the geological corps that no expense drafts will be issued for any office or other expenses in November and December.

4. *Resolved*, That the Publication Committee be authorized, if they think wise, to present to the Superintendent of Public Printing for immediate preparation for the press the Fossil Flora of the Coal by Leo Lesquereux, with 70 double 8vo. plates, to be lithographed by Mr. Sinclair, and to be published in 8vo. form, uniform with the Reports of Progress.

Also maps of Potter, Tioga, Bradford, Fayette, Westmoreland, Alleghany, Greene, Washington and Blair; and of other Counties as fast as they can be prepared, reduced to double 8vo. size and colored by Mr. Bien, to constitute a colored Geological Hand Atlas of Pennsylvania.

5. *Resolved*, That in future all editions of Reports of Progress shall be of copies.

6. *Resolved*, That an extra edition of one thousand (1000) copies of every map printed by Mr. Bien shall be struck off on thick paper and be kept for a final folio atlas of the Survey.

7. *Resolved*, That the regular edition of maps prepared and printed by Mr. Bien shall be 5000 copies.

All which is respectfully submitted.

J. P. LESLEY.